REMARKS

As now set forth in all of the amended independent claims, the common well region is formed on the substrate of opposite conductivity type to that of the common well region, so as not to allow a dark current to affect the picture cell. As a result, it is necessary to provide a reference voltage for the whole common well. In the present invention, therefore, a doped region having the same conductivity type as the common well is formed in the common well.

The claims were rejected in view of the disclosures of the cited Hoeberechts, Eom, JP'264 and JP'249 patents. In this regard Hoeberechts (U.S. Patent 4,652,899) has a disclosure wherein a diode consists of a plurality of sub-photodiodes so as to avoid an undesirable effect to the high-frequency wave action in the radiation detection by increase of the PN-junction capacitance of the diode. The plurality of sub-photodiodes are formed in a conductive well of the same type (N-type) as a substrate (N-type), wherein the potential of the well depends on the potential of the substrate. Accordingly, Applicants claimed invention differs from this reference. Although the photodiode is surrounded by an impurity region of P-type, the opposite conductivity type to the well, it aims at inhibiting the cross-talking between the photodiodes but does not aim at applying the reference voltage as in the present invention. Further, one picture cell signal of Hoeberechts consists of those from the plurality of sub-photodiodes surrounded as a whole and thus differs from the present invention wherein a plurality of area sensors are formed in the common well.

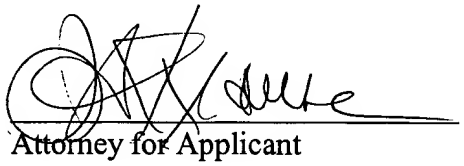
In JP'264, a line consisting of three area sensors is provided by a monolithic formation on a semiconductor chip. However, that patent does not disclose applicants' claimed structure which gives rise to the prevention of dark current with the prevention of shading by the uniformalization of the common well reference voltage.

The Eom reference is a disclosure of monolithic RGB pixels formed in an epi-layer. However, while there is an example wherein three pixels are arranged in a line, Eom does not disclose forming a plurality of area sensors in the common well as in the present invention nor the prevision of the claims.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and allowance of the present application.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE TO CLAIMS

1. (Amended) A solid-state imaging device having a first color picture cell array which contains picture cells having a photo-electric converting element for converting incident light to electric signals arranged two-dimensionally, and a second color picture cell array which contains picture cells having a photo-electric converting element for converting incident light to electric signals arranged two-dimensionally, placed in juxtaposition, on a substrate, wherein said substrate is formed from a material having a first conductivity type and is provided with a common well formed from a material of conductivity type opposite to the substrate, said common well being common to the first color picture cell array and the second color picture cell array and having a doped region therein of the same conductivity type as said common well.

11. (Amended) A solid-state imaging device having a first color picture cell array which contains picture cells having a photo-electric converting element for converting incident light to electric signals arranged two-dimensionally, and a second color picture cell array which contains picture cells having a photo-electric converting element for converting incident light to electric signals arranged two-dimensionally, placed in juxtaposition on a substrate, wherein said solid-state imaging device has between the first color picture cell array and the second color picture cell array a well-contact and a well-wiring for applying a reference voltage to a common well common to the first color picture cell array and the second color picture cell array, and wherein said substrate is formed from a material having a first conductivity type and has said common well formed therein from a material having the opposite conductivity type to

said substrate, said common well having a doped region therein of the same conductivity as the common well.

21. (Amended) A solid-state imaging device having a first color picture cell array which contains picture cells having a photo-electric converting element for converting incident light to electric signals arranged two-dimensionally, a second and third picture cell arrays which respectively contain picture cells having a photo-electric converting element for converting incident light to electric signals arranged two-dimensionally, and a fourth color picture cell array which contains picture cells having a photo-electric converting element for converting incident light to electric signals arranged two-dimensionally, placed in juxtaposition on a substrate,

wherein the first color picture cell array and the fourth color picture cell array are placed in a diagonal relation, and the second color picture cell array and the third color picture cell array are placed in another diagonal relation; and

said solid-state imaging device has between the first color picture cell array and the second color picture cell array a well-contact and a well-wiring for applying a reference voltage to a common well common to at least the first color picture cell array and the second color picture cell array, and wherein said substrate is formed from a material having a first conductivity type and has said common well formed therein from a material having the opposite conductivity type to said substrate, said common well having a doped region therein of the same conductivity as the common well.